

**POLYOL-BASED METHOD FOR FORMING THIN FILM  
AEROGELS ON SEMICONDUCTOR SUBSTRATES**

**5 ABSTRACT OF THE INVENTION**

This invention has enabled a new, simple nanoporous dielectric fabrication method. In general, this invention uses a polyol, such as glycerol, as a solvent. This new method allows both bulk and thin film aerogels to be made without supercritical  
10 drying, freeze drying, or a surface modification step before drying. Prior art aerogels have required at least one of these steps to prevent substantial pore collapse during drying. Thus, this invention allows production of nanoporous dielectrics at room temperature and atmospheric pressure, without a separate surface modification step. Although not required to prevent substantial densification, this new method does not  
15 exclude the use of supercritical drying or surface modification steps prior to drying. In general, this new method is compatible with most prior art aerogel techniques. Although this new method allows fabrication of aerogels without substantial pore collapse during drying, there may be some permanent shrinkage during aging and/or drying.

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